

# Improving Native Seeding in the Conservation Reserve Program

## Mid-Project Outcomes

Goals of the Conservation Reserve Program (CRP) are to reduce soil erosion, enhance water quality, and improve wildlife habitat by converting highly erodible cropland or other environmentally sensitive acreage to perennial vegetative cover that may support wildlife, pollinators, and improve environmental quality.

However, many CRP seedings in arid and semi-arid environments are unsuccessful due to low establishment of native species. While some historic CRP seedings reduced erosion through non-native grass monocultures (e.g. crested wheatgrass), these lack benefits to wildlife and pollinators.

There is a need to improve new and renovation CRP seeding with native species. The following research projects are ongoing in your area. We will distribute results upon project completion to strengthen the CRP program and seeding outcomes.



## Improving the Establishment of CRP Pollinator Seeding in Dry Areas

**Project Overview:** This project focuses on environmental and management factors (soil type or seeded species mix) that increase establishment and persistence of native grasses, forbs and legumes on CRP land in areas with less than 13 inches of annual precipitation in the northern Great Plains,

southern Great Plains, and Great Basin.

**Project Objective:** To increase seeding establishment success of native grasses, legumes, and forbs that support pollinator populations in new CRP seeding on a diversity of field types. The research will determine how precipitation, soils, seeding practices and management interact to determine CRP establishment in dry areas, and will quantify the conservation value of the seeding. We will provide data to Farm Service Agency (FSA) to support policy and deliver best seeding practices to producers.

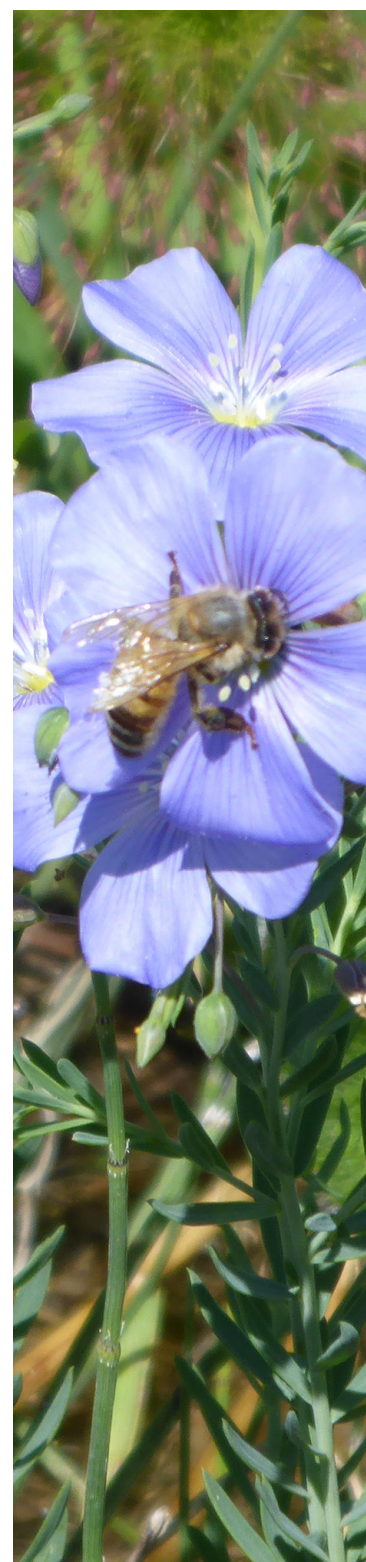
### Mid-project Outcomes:

- Initial plant establishment at the three Montana sites was generally more successful following green manure than chemical fallow, in part to less weed pressure in the subsequent spring following frost seeding of native grasses and forbs.
- The enhanced seed mix (8 grasses & 9 forbs) generally had better initial plant establishment than the standard seed mix (4 grasses & 3 forbs) in spite of the same overall seeding rate.
- Prairie coneflower, blanketflower, hairy golden aster, and Canada milkvetch had the best initial establishment among native forbs.
- Significant weed pressure limited initial establishment of native species at all three sites.

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## Studying CRP in Practice to Identify Effective Strategies for Meeting Vegetation Goals

**Project Overview:** This project identifies how vegetation goals are met on some CRP fields but not others to determine consistently effective management practices.





**Project Objective:** To understand environmental and management factors that increase abundance of forbs and other seeded species on CRP lands. The project will result in seeding recommendations for CRP with an emphasis on consistency in establishment of mixed stands of grasses and forbs.

#### Mid-project Outcomes:

- There are 104 fields enrolled in the project to date, 32 in Montana and 72 in Colorado.
- For each field, seed mix samples were collected at time of seeding, seeded species and weed densities were sampled during the first summer growing season, and land use histories were collected from land managers and property managers.
- An in depth data literature review has been completed to help create more robust analyses of the project data.

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## Assessing Pollinator Habitat Seedings Completed through USDA Farm Bill Programs

**Project Overview:** Pheasants Forever biologists will compile a list of completed and in-progress pollinator habitat seedings in the Prairie Pothole and Northern Great Plains regions of Montana to assess the stands for success (plant establishment, persistence, and pollinator response).

**Project Objective:** Build a database with environmental and seeding information on completed pollinator habitat seedings done through the USDA in Montana to better inform future pollinator habitat-planning efforts. Observations made during this assessment will be compiled to draw general conclusions about the viability of pollinator habitat plantings and their utilization by pollinator insects given variables such as species planted, precipitation zone, soil type, and planting equipment.

#### Mid-project Outcomes:

- 35 CRP pollinator plantings in 11 counties monitored between 2016 and 2018 for species success and permanence.
- Anecdotal evidence supports relative permanence of seeded blue flax,

blanketflower, prairie coneflower, and purple prairie clover.

- Data compiled and given to USDA-ARS to include in ongoing study assessing establishment of diverse seed mixes in Montana.

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## Renovating Monocultures of Exotic Cool Season Grass Seedings to Multifunctional CRP

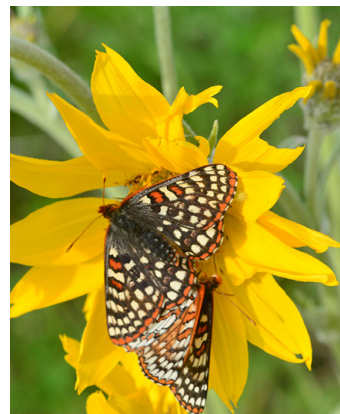
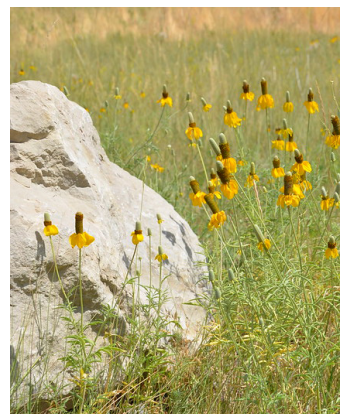
**Project Overview:** The project will develop techniques to reduce the competitiveness of monocultures of exotic cool season grasses (e.g. crested wheatgrass and smooth brome) so that native seedings successfully establish. We will evaluate herbicide use, site preparation techniques and their combinations, and the influence of soil chemistry and climate on the establishment of seeded species.

**Project Objective:** To develop technology that brings CRP acreage that is currently a monoculture of exotic cool season species into compliance with high-rent CRP program requirements. We will communicate successful strategies to reduce exotic monoculture grass competition and determine thresholds for local exotic grass abundance that prevents diversification seeding, which may depend on climate and soil type. Because no successful protocols have been developed to renovate and diversify acreage planted with monocultures of exotic cool season grasses, our research will represent a significant advance for improving the functioning of these CRP lands.

#### Mid-project Outcomes:

- Two years for high intensity grazing pre-treatment have been applied to seven site in Montana.
- Sites have been characterized for species abundance and cover pre- and post-grazing.
- Site-specific native grass and forb seed mixes have been developed, and herbicides identified for stage two of the project.
- The final experimental design will guide seeding and herbicide protocols.

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